User Guide

EXTECH INSTRUMENTS

Digital Light Meter

Model LT300

Warranty

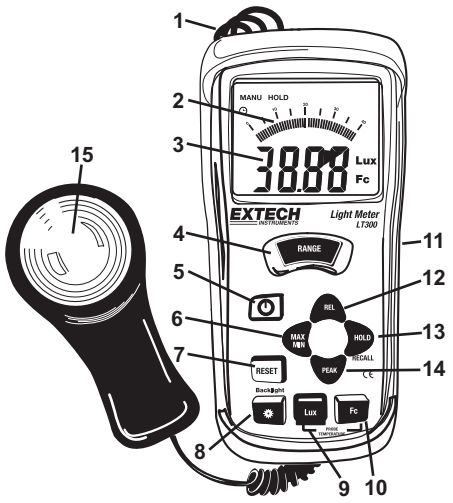
EXTECH INSTRUMENTS CORPORATION *warrants this instrument to be free of defects in parts and workmanship for* ***one year*** *from date of shipment (a six month limited warranty applies to sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 ext. 210 for authorization or visit our website www.extech.com for contact information. A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.*

Introduction

Congratulations on your purchase of the Extech LT300 Digital Light Meter. The LT300 measures light level (illuminance) to 200,000 Lux (20,000 Fc). The LT300 offers a backlit display, MAX/MIN, Data Hold, Relative, Peak, and Reset features. This instrument is shipped fully tested and calibrated and, with proper use, will provide years of reliable service.

Meter Description

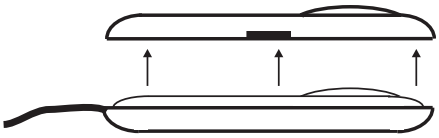
1. Sensor cable
2. Analog bargraph
3. Numerical display
4. RANGE button
5. ON/OFF button
6. MAX/MIN button
7. RESET button
8. LCD Backlight button
9. LUX button
10. Fc foot candle button
11. Protective rubber jacket
12. RELATIVE button
13. Data HOLD button
14. PEAK button
15. Photo sensor dome



Notes: Protective sensor cap not shown. Battery compartment, Tilt Stand, and Tripod Mount are located on the rear of the instrument. The protective rubber jacket must be removed from meter to access battery compartment.

Operation

Light sensor



1. The light sensor is permanently attached to the meter by the coiled cable.
2. Remove the protective cap by unsnapping it to expose the white domed light sensor. When the sensor's protective cap is removed, the white domed light sensor lens will begin to capture light. Replace the cap when the meter is not in use.

Turn Power ON or OFF

Press the ⏻ button to turn power on or off. If the display does not switch on, check that the 9V battery is installed and is fresh.

Selecting Lux or Foot candle units of measure

Press the **LUX** button to select lux units or the **Fc** button to select foot candle units.

Measurement Procedure

1. Remove the protective cap from the sensor so that the white domed light sensor is exposed to the light. For overhead lighting, the sensor can be placed on a desk or table top. A tripod mount and a tilt stand are located on the rear of the meter for convenience.
2. The display will indicate the light level in Fc or Lux.
3. Press the RANGE button to select the range that provides the maximum resolution. If the 'OL' appears the light measurement is out of range. Select another range using the RANGE button.
4. Press the backlight button to illuminate the LCD display if needed.

MAX/MIN

The Max/Min function allows for recording and display of the maximum and minimum light levels over time.

1. Press the **MAX/MIN** button. The **MAX** display icon will appear and meter will now display and hold only the highest reading. The display will update only when a higher reading is measured.
2. Press **MAX/MIN** button. The **MIN** display icon will appear and meter will now display and hold only the lowest reading. The display will update only when a lower reading is measured
3. Press **MAX/MIN** again. The **MAX MIN** display icons will appear flashing and meter will now display the current reading, but will continue to record the highest and lowest values.
4. Press **MAX/MIN** again to cycle through MAX and MIN displays.
5. To exit the MAX MIN mode, press and hold the **MAX/MIN** button until the **MAX** and **MIN** icons completely disappear.

Data Hold

Press the **HOLD** button to freeze the displayed reading. The " MANU HOLD" hold icon will appear on the display. Press the **HOLD** button again to return to normal operation. When the Data Hold function is enabled the analog bar graph will continue to display level changes.

Peak Hold

The Peak Hold feature allows the meter to captures light pulses that rise or fall down to 10µs.

1. Press and hold the **PEAK** button until **CAL** appears in the display.
2. Momentarily press the **PEAK** button. The '**PMAX**' icon will appear on the LCD. The meter will then measure and display any light pulses. The display will hold the results until a higher pulse appears.
3. Press the **PEAK** button again to display the "**PMIN**" values.
4. To exit the Peak Hold mode, press and hold the **PEAK** button until the '**PMAX**' or '**PMIN**' icon disappears.

Relative mode

Measurements can be displayed as a difference between the measured light level and a stored reference value. To store a reading as a reference, press the **REL** button when the desired reference measurement is on the LCD (the REL icon will switch on). All subsequent displayed readings will be "relative" to the stored reference value. For example, if the reference value is 100 and the actual light level is 125, the meter will display 25. To view the reference value, press the **REL** button again so that the REL icon begins to flash. The displayed value will be the reference value. To exit the Relative mode, press and hold the **REL** button until the REL icon disappears.

RESET

Press the **RESET** button to clear the memory and exit from REL, HOLD, PEAK and MAX/MIN. The RESET will also reset the auto power off timer.

Backlight

Press the " " button to turn the backlight on. Press again to turn it off.

Maintenance

Cleaning and storage

1. The white plastic sensor dome should be cleaned with a damp cloth when necessary. Use only a mild soap if needed. Do not use solvents, abrasives, or harsh detergents to clean the dome.
2. Store the meter in an area with moderate temperature and humidity (refer to the operating and storage range in the 'Specifications' section).

Battery Replacement

When the battery power begins to fail the low battery symbol "▮"will appear on the LCD. Replace the 9V battery by first removing protective jacket that encases the meter. Remove the rear (center) battery compartment screw to access the battery compartment. Ensure that the compartment cover is securely fastened and that the protective jacket is properly installed before using the meter.

Specifications

Ranges and Resolution	Accuracy
Lux	
40.00, 400.0, 4000, 40.00k, 200.0kLux	± (5% Rdg + 0.5% Full Scale)
Foot candle (Fc)	
40.00, 400.0, 4000, 20.00kFc	± (5% Rdg + 0.5% Full Scale)

General Specifications

Display	Multi-function 3-3/4 (3999) digit LCD with Bargraph indicator
Over range indication	LCD displays 'OL'
Spectral response	CIE photopic (CIE human eye response curve)
Spectral accuracy	CIE Vλ function (f_1 $\lambda \leqq 6\%$)
Measurement Repeatability	±2%
Temperature coefficient	±0.1% per ^{o}C
Sampling rate	13.3 times per second (bargraph); 1.3 times per second (digital display)
Photo detector	Silicon photo-diode with spectral response filter
Peak Hold	Capture light peaks to 10µS
Operating conditions	Temperature: 32 to 104^{o}F (0 to 40^{o}C); Humidity: < 80% RH
Storage conditions	Temperature: 14 to 140^{o}F (-10 to 50^{o}C); Humidity: < 80% RH
Dimensions	6.5 x 3.0 x 1.7" (165 x 76 x 43mm)
Weight	Approx. 14.2 oz. (403g) with battery installed
Low battery indication	"▯" appears on the LCD
Power supply	9V battery

Calibration and Repair Services

Extech offers repair and calibration services for the products we sell. Extech also provides NIST certification for most products. Call the Customer Service Department for information on calibration services available for this product. Extech recommends that annual calibrations be performed to verify meter performance and accuracy.

☎

Support line (781) 890-7440

Technical support: Extension 200; E-mail: support@extech.com

Repair & Returns: Extension 210; E-mail: repair@extech.com

Product specifications subject to change without notice

For the latest version of this User's Guide, Software updates, and other up-to-the-minute product information, visit our website: www.extech.com

Extech Instruments Corporation, 285 Bear Hill Rd., Waltham, MA 02451

Copyright © 2006 Extech Instruments Corporation.
All rights reserved including the right of reproduction in whole or in part in any form.

Appendix

Typical Light Levels

Lux	Foot Candles		Lux	Foot Candles	
		Factories			**Home**
20-75	2-7	Emergency Stairs, Warehouse	100-150	10-15	Washing
75-150	7-15	Exit/Entrance Passages	150-200	15-20	Recreational Activities
150-300	15-30	Packing Work	200-300	20-30	Drawing Room, Table
300-750	30-75	Visual Work: Production Line	300-500	30-50	Makeup
750-1,500	75-150	Typesetting: Inspection Work	500-1,500	50-150	Reading, Study
1,500-3,000	150-300	Electronic Assembly, Drafting	1,000-2,000	100-200	Sewing
		Office			**Restaurant**
75-100	7-10	Indoor Emergency Stairs	75-150	7-15	Corridor Stairs
100-200	10-20	Corridor Stairs	150-300	15-30	Entrance, Wash Room
200-750	20-75	Conference, Reception Room	300-750	30-75	Cooking Room, Dining Table
750-1,500	75-150	Clerical Work	750-1,500	75-150	Show Window
1,500-2,000	150-2000	Typing, Drafting			
		Store			**Hospital**
75-150	7-15	Indoors	30-75	3-7	Emergency Stairs
150-200	15-20	Corridor/Stairs	75-100	7-10	Stairs
200-300	20-30	Reception	100-150	10-15	Sick Room, Warehouse
300-500	30-50	Display Stand	150-200	15-20	Waiting Room
500-750	50-75	Elevator	200-750	20-75	Medical Exam Room
750-1,500	75-150	Show Window, Packing Table	750-1,500	75-150	Operating Room
1,500-3,000	150-300	Storefront, Show Window	5,000-10,000	500-1000	Eye Inspection

Spectral Sensitivity